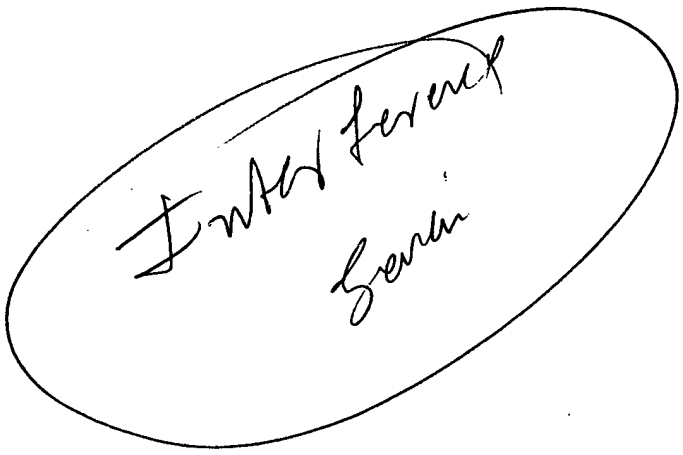
EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	3	(("5706348") or ("5812557") or ("6834040")).PN.	USPAT; USOCR	OR	OFF	2007/03/30 17:00
L3	1	2 and carrier	US-PGPUB; USPAT; USOCR	OR	OFF	2007/03/30 17:03
L4	451	(((toner or data) near2 packet) and carrier).clm.	US-PGPUB	OR	OFF	2007/03/30 17:04
L5	39125	(((toner or data) near2 packet) and carrier and cable or wire).clm.	US-PGPUB	OR	OFF	2007/03/30 17:05
L6	40	(((toner or data) near2 packet) and carrier and (cable or wire)).clm.	US-PGPUB	OR	OFF	2007/03/30 17:05
L7	8	(((toner or data) near2 packet) and (carrier adj (signal or frequency)) and (cable or wire)).clm.	US-PGPUB	OR	OFF	2007/03/30 17:06
L8	17	(((toner or data) near2 packet) and (carrier adj (signal or frequency)) and (cable or wire)).clm.	US-PGPUB	OR	ON	2007/03/30 17:05
L9	0	(((toner or data) near2 packet) and (carrier adj (signal or frequency)) and (cable or wire) and (sync or syncronization)).clm.	US-PGPUB	OR	OFF	2007/03/30 17:07
L10	357	(((toner or data) near2 packet) and (carrier adj (signal or frequency)) and (cable or wire) and (sync or syncronization))	US-PGPUB	OR	OFF	2007/03/30 17:07
L11	4	(((toner or data) near2 packet) and (carrier adj (signal or frequency)) and ((cable or wire) near2 test$3) and (sync or syncronization))	US-PGPUB	OR	OFF	2007/03/30 17:08
L12	1	11 and "455"	US-PGPUB	OR	OFF	2007/03/30 17:09



EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	5	("20030071634"|"5378992"|"5894223"|"5914608"|"6798183").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/01 16:23
S2	53	(CABLE WITH TEST$4).TI. AND TONE	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:11
S3	0	(CABLE WITH TEST$4).TI. AND TONE ADJ PACKET	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:11
S4	1	(CABLE WITH TEST$4).CLM. AND TONE ADJ PACKET	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:11
S5	0	(CABLE WITH TEST$4).AB. AND TONE ADJ PACKET	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:12
S6	1	(CABLE NEAR2 TEST$4) WITH TONE ADJ PACKET	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:14
S7	2	(CABLE NEAR2 TEST$4) WITH TONER	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:16
S8	1	(CABLE NEAR2 TEST$4) WITH TONER	FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/09/19 18:18
S9	17	(CABLE NEAR2 TEST$4) WITH TON$5	FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/09/19 18:18
S10	74	(CABLE NEAR2 TEST$4) WITH TON$4	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:19
S11	43	(CABLE NEAR2 TEST$4) WITH TON$4 AND DATA	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:20
S12	2	(CABLE NEAR2 TEST$4) WITH TON$4 AND DATA AND CARRIER ADJ SIGNAL	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:22
S13	5	(CABLE NEAR2 TEST$4) WITH TON$4 AND DATA AND LOCATE	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:24
S14	20	(CABLE NEAR2 TEST$4) WITH TON$4 AND DATA AND ISOLATE	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:25

EAST Search History

S15	1	(CABLE NEAR2 TEST$4) WITH TON$4 AND DATA AND CABLE ADJ ISOLATE	US-PGPUB; USPAT; USOCR	OR	ON	2006/09/19 18:25
S16	50	("20050068056" "3882287" "4412177" "5914608" "6707305" "20030071634" "20040184620" "4939969" "5887051" "7026803" "20040135570" "5193108" "5504811" "4393491" "5352984" "4277740" "4370610" "4518911" "4788710" "4980887" "5307398" "5548820" "5621600" "5883573" "5889835" "5969833" "6118975" "6411680" "4445086" "4812752" "4933962" "5672964" "5714885" "5712897" "3886321" "4028492" "4251691" "4381610" "4468999" "4506116" "4609789" "4814883" "4862088" "4868900" "4955053" "5238006" "5243424" "5281219" "5389729" "5563938").pn.	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/01 16:23
S17	50	(US-20050068056-$ or US-20030071634-$ or US-20040184620-$ or US-20040135570-$).did. or (US-3882287-$ or US-4412177-$ or US-5914608-$ or US-6707305-$ or US-4939969-$ or US-5887051-$ or US-7026803-$ or US-5193108-$ or US-5504811-$ or US-4393491-$ or US-5352984-$ or US-4277740-$ or US-4370610-$ or US-4518911-$ or US-4788710-$ or US-4980887-$ or US-5307398-$ or US-5548820-$ or US-5621600-$ or US-5883573-$ or US-5889835-$ or US-5969833-$ or US-6118975-$ or US-6411680-$ or US-4445086-$ or US-4812752-$). did. or (US-4933962-$ or US-5672964-$ or US-5714885-$ or US-5712897-$ or US-3886321-$ or US-4028492-$ or US-4251691-$ or US-4381610-$ or US-4468999-$ or US-4506116-$ or US-4609789-$ or US-4814883-$ or US-4862088-$ or US-4868900-$ or US-4955053-$ or US-5238006-$ or US-5243424-$ or US-5281219-$ or US-5389729-$ or US-5563938-$).did.	US-PGPUB; USPAT	OR	OFF	2006/11/01 16:57
S18	1	"20050068056"	US-PGPUB; USPAT	OR	OFF	2006/11/01 16:39

EAST Search History

S19	0	detecting with tone with troubleshooting with tracing with communications with cabl$4	USPAT	OR	OFF	2006/11/01 16:40
S20	0	detecting with tone with troubleshooting with tracing with communications with cabl$4	USPAT	OR	ON	2006/11/01 16:40
S21	1	detecting with tone with troubleshooting with tracing with communications with cabl$4	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/01 16:41
S22	0	detecting with tone with troubleshooting with tracing with communications with cabl$4	FPRS	OR	ON	2006/11/01 16:41
S23	1	detecting with tone with troubleshooting with tracing with communications with cabl$4	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/01 16:41
S24	1	detecting with tone with communications with cabl$4	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/01 16:41
S25	5	detecting with tone with communications with cabl$4	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2006/11/01 16:48
S26	5	("20030071634"|"5378992"|"5894223"|"5914608"|"6798183").PN.	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2006/11/01 16:48
S27	1	("2003/0071634").URPN.	USPAT	OR	OFF	2006/11/01 16:50
S28	3	"6707305"	USPAT	OR	OFF	2006/11/01 16:50
S29	9	("4922516" | "5025466" | "5193108" | "5703928").PN. OR ("5887051"). URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/11/01 16:51
S30	6	"5887051"	US-PGPUB; USPAT; USOCR	OR	OFF	2006/11/01 16:52
S31	15	S17 and carrier	US-PGPUB; USPAT	OR	ON	2006/11/01 16:58
S32	1	S17 and quanta	US-PGPUB; USPAT	OR	ON	2006/11/01 16:58
S33	3	S17 and carrier and sync$4	US-PGPUB; USPAT	OR	ON	2006/11/01 17:22
S34	3	S17 and carrier and sync$4 and data	US-PGPUB; USPAT	OR	ON	2006/11/01 17:42
S35	3	S17 and carrier and sync$4 and data and mode	US-PGPUB; USPAT	OR	ON	2006/11/01 17:42
S36	5	("20030071634"|"5378992"|"5894223"|"5914608"|"6798183").PN.	US-PGPUB; USPAT	OR	OFF	2006/11/02 15:04

EAST Search History

S37	20	(US-20050068056-$ or US-20030071634-$ or US-20040184620-$ or US-20030218578-$).did. or (US-6982557-$ or US-6437580-$ or US-5548820-$ or US-4970466-$ or US-6980007-$ or US-5193108-$ or US-4922516-$ or US-6798183-$ or US-4980887-$ or US-4393491-$ or US-4864597-$ or US-6707305-$ or US-3891811-$ or US-5887051-$ or US-7127041-$ or US-5025466-$). did.	US-PGPUB; USPAT	OR	OFF	2006/11/02 16:24
S38	0	S37 and syncronization	US-PGPUB; USPAT	OR	OFF	2006/11/02 16:25
S39	0	S37 and syncroniz$4	US-PGPUB; USPAT	OR	OFF	2006/11/02 16:25
S40	3	S37 and synchronization	US-PGPUB; USPAT	OR	OFF	2006/11/02 16:25
S41	20	(US-20030071634-$ or US-20040184620-$ or US-20030218578-$ or US-20050068056-$).did. or (US-4393491-$ or US-7127041-$ or US-6982557-$ or US-6980007-$ or US-6798183-$ or US-6707305-$ or US-6437580-$ or US-5548820-$ or US-5193108-$ or US-5025466-$ or US-3891811-$ or US-4980887-$ or US-4970466-$ or US-4922516-$ or US-5887051-$ or US-4864597-$). did.	US-PGPUB; USPAT	OR	OFF	2006/11/02 18:37
S42	1	S41 and isolate adj mode	US-PGPUB; USPAT	OR	OFF	2006/11/02 18:37
S43	1	(cable adj isolate adj mode) and ((cable or wire) adj test$4)	US-PGPUB; USPAT	OR	ON	2006/11/02 18:38
S44	1	(cable adj isolat$4 adj mode) and ((cable or wire) adj test$4)	US-PGPUB; USPAT	OR	ON	2006/11/02 18:38
S45	1	(cable adj isolat$4 adj mode)	US-PGPUB; USPAT	OR	ON	2006/11/02 18:38
S46	1	((cable or wire) adj isolat$4 adj mode)	US-PGPUB; USPAT	OR	ON	2006/11/02 18:38

EAST Search History

S47	20	(US-20030218578-$ or US-20040184620-$ or US-20050068056-$ or US-20030071634-$).did. or (US-6707305-$ or US-4864597-$ or US-4970466-$ or US-6982557-$ or US-6798183-$ or US-5887051-$ or US-7127041-$ or US-4980887-$ or US-5025466-$ or US-5193108-$ or US-3891811-$ or US-4393491-$ or US-6980007-$ or US-5548820-$ or US-6437580-$ or US-4922516-$). did.	US-PGPUB; USPAT	OR	OFF	2007/03/22 14:26
S48	6	S47 and carrier	US-PGPUB; USPAT	OR	OFF	2007/03/22 17:17
S49	25511	(carrier or sync or syncroniz$5) with ((audio or data) adj signal)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:19
S50	129	(carrier or sync or syncroniz$5) with ((audio or data) adj signal) with test$4	US-PGPUB; USPAT	OR	ON	2007/03/22 17:20
S51	42	((carrier or sync or syncroniz$5) with ((audio or data) adj signal) with test$4).clm.	US-PGPUB; USPAT	OR	ON	2007/03/22 17:22
S52	0	((carrier and sync) with ((audio or data) adj signal) with test$4).clm.	US-PGPUB; USPAT	OR	ON	2007/03/22 17:23
S53	0	((carrier and sync) and ((audio or data) adj signal) with test$4).clm.	US-PGPUB; USPAT	OR	ON	2007/03/22 17:23
S54	2	((carrier and sync) and ((audio or data) adj signal) and test$4).clm.	US-PGPUB; USPAT	OR	ON	2007/03/22 17:24
S55	0	(tone adj phase) same (syncronization adj phase)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:25
S56	0	(tone adj phase) and (syncronization adj phase)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:25
S57	9	(tone adj phase) and (synchronization adj phase)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:25
S58	4	(tone adj phase) same (synchronization adj phase)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:27
S59	3072	(tone) same (synchronization)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:27
S60	1574	(tone) with (synchronization)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:27
S61	3	((tone) with (synchronization)) and (cable adj test$4)	US-PGPUB; USPAT	OR	ON	2007/03/22 17:52
S62	6	("3904839" | "4251766").PN. OR ("4518911").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/03/22 17:51

EAST Search History

S63	1	S62 and synchronization	US-PGPUB; USPAT	OR	ON	2007/03/22 18:04
S64	1	S62 and synchroniz$4	US-PGPUB; USPAT	OR	ON	2007/03/22 18:02
S65	13	("5406635" | "5475711" | "5864602" | "6177801").PN. OR ("6445773"). URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/03/22 18:03
S66	2	S65 and synchronization	US-PGPUB; USPAT	OR	ON	2007/03/22 18:07
S67	55	("20020001287" | "20020118766" | "20030066005" | "20030105997" | "4841526" | "5399891" | "5479447" | "5511079" | "5600663" | "5677927" | "5699365" | "5699369" | "5737337" | "5742640" | "5751741" | "5828677" | "5852633" | "5896391" | "5907563" | "5946346" | "6002671" | "6005893" | "6034996" | "6064692" | "6072779" | "6075821" | "6088387" | "6088390" | "6092230" | "6101223" | "6128763" | "6130882" | "6163766" | "6222888" | "6236674" | "6249543" | "6317435" | "6353627" | "6363109" | "6370669" | "6441931" | "6445773" | "6449288" | "6459678" | "6477669" | "6487316" | "6493402" | "6516027" | "6529558" | "6571089" | "6574769" | "6598188" | "6611564" | "6625777" | "6690676").PN. OR ("7103096"). URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/03/22 18:06
S68	15	S67 and synchronization	US-PGPUB; USPAT; USOCR	OR	ON	2007/03/22 18:37
S69	1787	(data adj packet) with synchronization	US-PGPUB; USPAT; USOCR	OR	ON	2007/03/22 18:37
S70	16	((data adj packet) with synchronization) with test$4	US-PGPUB; USPAT; USOCR	OR	ON	2007/03/22 18:39
S71	1	((data adj packet) with synchronization) with test$4 and "455"	US-PGPUB; USPAT; USOCR	OR	ON	2007/03/22 18:47
S72	16	((data adj packet) with synchronization) with test$4	US-PGPUB; USPAT; USOCR	OR	ON	2007/03/22 18:47

EAST [Browser - L24: (16) ((data adj p... | US 5812557 A | Tag: S | Doc: 13/16 | Format: KWIC

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L24: (16) ((data adj p... | US 5812557 A | Tag: S | Doc: 13/16 | Full 1/38 (Total images: 38)

US005812557A

United States Patent [19]

Stewart et al.

[11] Patent Number: 5,812,557

[45] Date of Patent: Sep. 22, 1998

[54] POWER LINE COMMUNICATIONS ANALYZER

[75] Inventors: J. Marcus Stewart, San Jose; Glen M. Riley, Los Gatos; Philip H. Sutterlin, San Jose; Marie E. Andreu, Los Gatos; Amy O. Herlbut, San Francisco; Milton T. Torney, Los Altos, all of Calif.

[73] Assignee: Echelon Corporation, Palo Alto, Calif.

[21] Appl. No.: 926,686

[22] Filed: Sep. 4, 1997

Related U.S. Application Data

[63] Continuation of Ser. No. 667,326, Jun. 20, 1996, abandoned, which is a continuation of Ser. No. 548,778, Oct. 26, 1995, abandoned, which is a continuation of Ser. No. 41,567, Apr. 2, 1993, abandoned.

[51] Int. Cl.[6] G06F 11/00

[52] U.S. Cl. 371/20.1; 371/5.5; 370/252; 370/317; 370/318; 375/254

[58] Field of Search 371/20.1, 5.5, 371/64, 5.1, 2.1; 370/252, 317, 316; 375/254

[56] References Cited

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9418637	8/1994	WIPO .

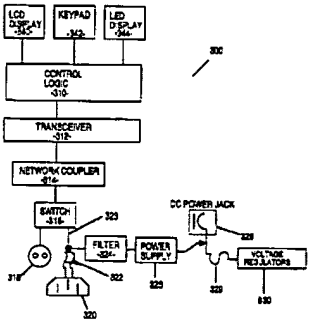
Primary Examiner—Phung M. Chung

Attorney, Agent, or Firm—Blakely, Sokoloff, Taylor & Zafman LLP

[57] ABSTRACT

A power line communications analyzer (PLCA) provides a signal strength measuring system and selectable signal attenuation functions for adjusting the transmitting unit's attenuation and measuring error rate without the need for a user to be present at both the sending and receiving locations under test. Each PLCA is coupled to a power line communication network via an electrical outlet and power lines. In actual operation, one of the PLCAs acts as a data transmitter and the other PLCA acts as a data receiver. The mode of operation of the PLCA can be dynamically altered during operation of the system. The PLCA comprises control logic that receives command inputs from a keypad, generates data packets for transmission on the power line communication network, receives and analyzes data packets received from the power line communication network, detects the power line signal and/or noise level and drives the LED display accordingly, and displays packet transmission information on an LCD display.

7 Claims, 26 Drawing Sheets



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US-PAT-NO: 5812557

DOCUMENT-IDENTIFIER: US 5812557 A

TITLE: Power line communications analyzer

Detailed Description Text - DETX (25):

Referring to FIG. 6, the first part of the PLCA MAIN LOOP is illustrated. In this part of the main loop, the PLCA logic checks for any control messages that may have been received from a remote PLCA. These control messages comprise a start message, a synchronization message, a stop/pause message, a test status request message, and a mode or attenuation change message. It will be apparent to one of ordinary skill in the art that other types of control messages can be provided. Starting at decision block 670, the PLCA checks for a start message. A start message is generated by a remote receiver PLCA when a remote user activates a start key on the remote PLCA keypad. In this case, the attenuation level is sent by the remote PLCA in the start message. The local PLCA updates the local attenuation level as specified by the remote PLCA in processing block 673. The local PLCA then jumps to the processing logic starting at the bubble labeled TSTART illustrated in FIG. 15 where a transmitter start sequence is initiated. If a synchronization message is received, processing path 678 in FIG. 6 is taken to the bubble labeled H illustrated in FIG. 20. The synchronization message is used to prepare a receiver PLCA for the reception of test data packets from a transmitter PLCA.

Detailed Description Text - DETX (39):

In processing block 818, a synchronization message is sent by the transmit analyzer to a receive analyzer coupled somewhere out on powerline communication network 150. The synchronization message is intended to notify a receive analyzer that data packet transmission is about to begin in a new test sequence. The transmitter also forwards the current transmitter attenuation level to the receiver PLCA. The transmit analyzer also displays a message "communicating" on LCD display 340. An active mode is also entered in processing block 818. If the receive analyzer acknowledges receipt of the synchronization message, processing path 824 is taken to the processing block 826 where a message "remote ready" is displayed on LCD display 340. In this case, the transmit analyzer begins sending test data packets to the receive analyzer present on network 150. The data packets are continuously sent until a pause key or a stop key

Details | Text | Image | HTML | KWIC

analyzer

14	☐	☐	US 5706348 A	19980106	11	Use of marker packets for synchronizatıcn of 713/
15	☐	☐	US 5596574 A	19970121	13	Method and apparatus for synchronizing data 370/
16	☐	☐	US 5400338 A	19950321	8	Parasitic adoption of coordinate-based addressing 370/

Details | Text | Image | HTML

EAST Search Cont for 10/699,617

Carrier

Mars 455 kHz

EAST Browser - L12: (1) 11 and "455" | US 20020044043 A1 | Tag: 5 | Doc: 1/1 | Format: KWIC

File Edit View Tools Window Help

US 20020044043A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2002/0044043 A1

Chaco et al. (43) Pub. Date: Apr. 18, 2002

(54) PATIENT CARE AND COMMUNICATION SYSTEM

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(21) Appl. No.: 09/883,424

(22) Filed: Jun. 18, 2001

Related U.S. Application Data

(63) Continuation of application No. 08/923,227, filed on Sep. 4, 1997, now Pat. No. 6,259,355, which is a continuation-in-part of application No. 08/067,394, filed on Jul. 2, 1993, now Pat. No. 5,455,851 and which is a continuation-in-part of application No. 08/033,287, filed on Mar. 15, 1993, now abandoned, which is a continuation-in-part of application No. 07/924,101, filed on Aug. 3, 1992, now Pat. No. 5,465,082, which is a continuation-in-part of application No. 07/559,196, filed on Jul. 27, 1990, now Pat. No. 5,291,309.

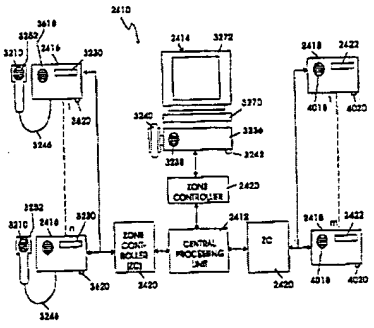
Publication Classification

(51) Int. Cl.[7] H04M 11/00

(52) U.S. Cl. 340/286.07; 379/106.02

(57) ABSTRACT

The present invention relates to a patient care and communication system which utilizes a central processing system and a plurality of remote stations electrically connected to the central processing system to facilitate visual and data communications. Each remote station includes telephone circuitry which is connected to a private branch exchange for telephone communications between stations. In addition, the private branch exchange is connected to a telephone exchange and a plurality of telephones for facilitating telephone communication therebetween. The central processing system facilitates the visual and data communications between the plurality of remote stations, and includes a system for determining which of the plurality of remote stations are transmitting the visual and data communications and which of the plurality of remote stations are to receive the visual and data communications. The central processing system also includes a system which establishes a communication link between the transmitting stations and the receiving stations. The remote stations include a processing system which also facilitates the visual, data and telephone communications and a display for displaying the visual communications. The present invention also includes a staff and/or patient locator system, in which each remote station includes an infrared receiver that receives infrared transmissions from a portable transmitter worn by a staff member or patient. The infrared transmissions include identity information associated with the person wearing the transmitter. The identity information is then transferred to the central processing system which determines the identity and location of each person wearing a portable transmitter.



Details | Text | Image | HTML | Full

[0180] An oscillator 4940 is connected to the microcontroller 4900 for providing an oscillation signal, which in turn generates a clock signal for clocking or timing purposes. In the preferred embodiment, the oscillator 4940 includes a resistor/capacitor combination for providing a clock which operates at a frequency of around 455 kilohertz. Due to variations in the tolerances of the resistor/capacitor combination, the clock rate for each badge unit will vary from one badge to another substantially around 455 kilohertz. The microcontroller 4900 includes a prescaler for providing time and clock signals.

Detail Description Paragraph - DETX (135):

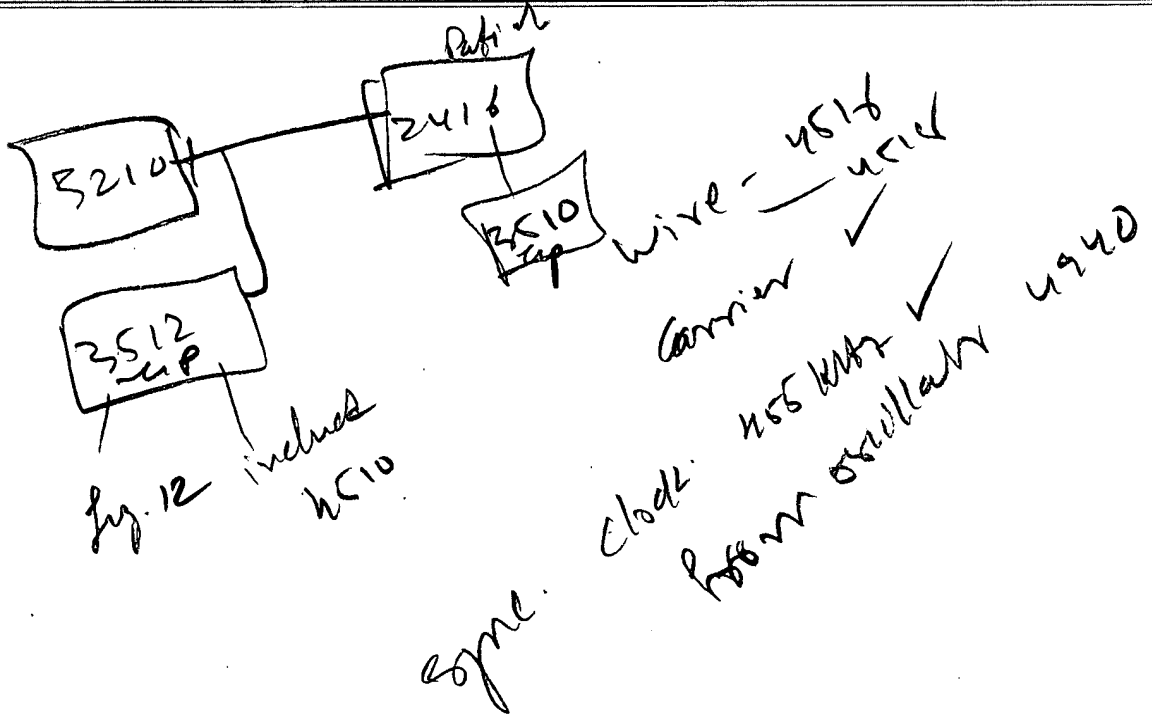
[0183] In an alternative embodiment shown in FIGS. 39 and 40, the badge unit may interface with an independent wireless electromagnetic receiver, preferably infrared receiver 5330. In one embodiment, each wireless receiver is located within the patient room and connected to a controller 5370 which responds to control data received from receiver 5330 to control the environmental facilities. In another embodiment, each wireless receiver is connected to either the central processing unit 2412 through zone controller 2420 or to the PBX 2430. In this embodiment, central processing unit 2412 or PBX 2430 will respond to the control data in a similar manner as controller 5370 and communications between the independent receiver and the central processing unit 2412 or the PBX 2430 is similar to the above described communications relating to receiver 4800, shown in FIGS. 23 and 25. As shown in FIG. 40, infrared light sensitive diode array 5340 receives infrared signals, preferably frequency modulated infrared signals, transmitted from badge units 5140 within approximately 30 feet of the receiver. Waveshaping and amplifier network 5350 conditions and amplifies the signals generated by the diode array 5340. FM receiver 5360 demodulates the control data from the carrier signal and serially transfers the received control data to controller 5370.

Detail Description Paragraph - DETX (149):

[0196] The PCM signal received at a station from PBX 2430 is then processed through a waveshaping and conditioning network 4650, shown in FIG. 25. Network 4650 converts the received signal from the PCM format to a serial digital format, recovers the synchronization clock to sync the timing via phase-locked loop 4670, and recaptures the telephone voice and data information and the system data. System Data is retrieved by the receiver waveshaping and conditioning network 4650 using an alternate mark inversion (AMI) conversion technique. The AMI conversion method changes the level of the output signal for each positive crossing of the zero line by the input signal, as shown in FIG. 32.

Details | Text | Image | HTML | KWIC

Details | Text | Image | HTML



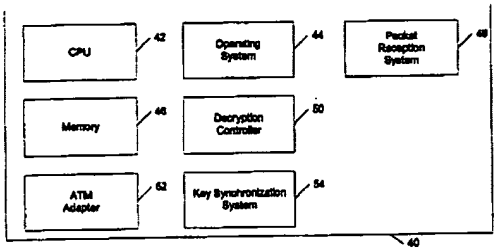


Fig. 4

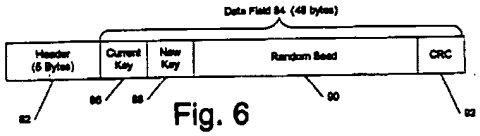


Fig. 6

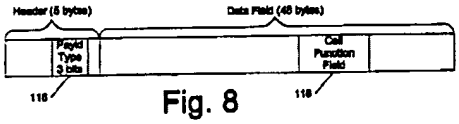


Fig. 8

L24: (16) ((data adj p... | US 5706348 A | Tag: S | Doc: 14/16 | Format: KWIC

US-PAT-NO: 5706348
DOCUMENT-IDENTIFIER: US 5706348 A
TITLE: Use of marker packets for synchronization of encryption/decryption keys in a data communication network

Detailed Description Text - DETX (7):

Key synchronization operations can be performed using special purpose cells, called marker cells, to notify a destination node that it is to activate a previously received decryption key. FIG. 5 is a flow chart of steps that are performed at a source node in maintaining key synchronization using either of two types of marker cells, both of which will be described in detail later. It is assumed that the source node sends data packets as part of a packet send process 60. Symbol 62 is intended to represent that the packet send process 60 operates in parallel with and asynchronously to the key synchronization process. The point of entry into the key synchronization process is a test 64 whether a key update is to occur; that is, whether a new decryption key is to be sent to a destination node to which data packets are currently being transmitted. If a key update is to occur, the new decryption key is sent to the destination node in an operation 66 using a conventional secure and reliable key exchange protocol. The specific key exchange protocol employed is not critical to the present invention. It only matters that the new key is sent to the destination node at which it is eventually to be used.

Details | Text | Image | HTML | KWIC

					analyzer	
14	☐	US 5706348 A	19980106	11	Use of marker packets for synchronization of	713/
15	☐	US 5596574 A	19970121	13	Method and apparatus for synchronizing data	370/
16	☐	US 5400338 A	19950321	8	Parasitic adoption of coordinate-based addressing	370/

Details | Text | Image | HTML | Full

LAST Browser - L24: (16) ((data adj p... | US 6834040 | Tag: S | Doc: 11/16 | "Full" 1/13 (Total images 13) | Front Page

File Edit View Tools Window Help

US006834040B2

(12) **United States Patent**
Tomberlin

(10) **Patent No.: US 6,834,040 B2**
(45) **Date of Patent: Dec. 21, 2004**

(54) **MEASUREMENT SYNCHRONIZATION METHOD FOR VOICE OVER PACKET COMMUNICATION SYSTEMS**

(75) Inventor: Jeffrey Tomberlin, Colorado Springs, CO (US)

(73) Assignee: Agilent Technologies, Inc., Palo Alto, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 851 days.

(21) Appl. No.: 09/784,428

(22) Filed: Feb. 15, 2001

(65) Prior Publication Data

US 2002/0110153 A1 Aug. 15, 2002

(51) Int. Cl.[7] H04L 7/00; H04J 3/06

(52) U.S. Cl. 370/241; 370/503

(58) Field of Search 370/241, 252, 370/248, 503, 507; 375/358, 362, 355

(56) References Cited

U.S. PATENT DOCUMENTS

5,436,935 A * 7/1995 Barnhard et al. 375/367
5,805,648 A * 9/1998 Wang 375/334

6,212,247 B1 * 4/2001 Okanoue 375/356

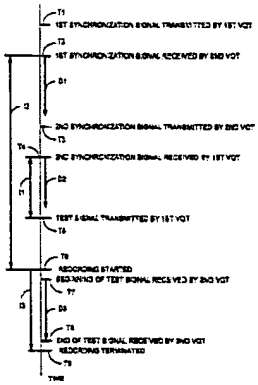
* cited by examiner

Primary Examiner—Hassan Kizou
Assistant Examiner—Hong Cho

(57) **ABSTRACT**

A method for synchronizing a measurement in a communication system. Recent developments in communication systems have resulted in combining the traffic historically carried separately by telephone and data networks. The service provided by such systems is referred to as Voice over Packet (VoP) with the more popular version using the Internet Protocol (IP) commonly referred to as Voice over IP (VoIP). VoP technologies have made maintaining voice quality at high levels more complex by compressing the voice signal and transmitting it in discrete packets. With voice traffic there is the need for timely packet delivery, often in networks that were not originally designed for these conditions. Digitizing analog voice signals often affects voice clarity. Objective tests for voice quality are available but are difficult to synchronize between stations. To methods disclosed pseudo-random analogue signals which emulate while noise are created and used as synchronization signals which enable this synchronization more precisely than previous methods. These signals are relatively unaffected by the codecs commonly used for voice and data compression.

16 Claims, 5 Drawing Sheets



Details | Text | Image | HTML | Full

L24: (16) ((data adj p... | US 6834040 B2 | Tag: S | Doc: 11/16 | Format: KWIC

US-PAT-NO: 6834040
DOCUMENT-IDENTIFIER: US 6834040 B2
TITLE: Measurement synchronization method for voice over packet communication systems

Claims Text - CLTX (2):

2. The method as recited in claim 1, providing the first synchronization signal, second synchronization signal, and the test signal are transmitted as a series of digitized data packets.

Details | Text | Image | HTML | KWIC

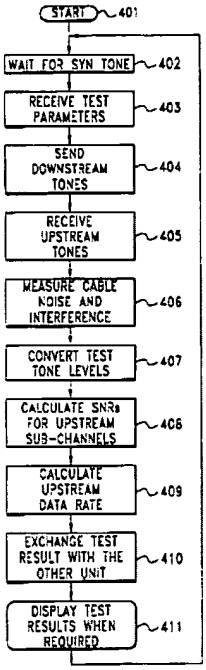
						analyzer	
14	☐	☐	US 5706348 A	19980106	11	Use of marker packets for synchronization of	713/
15	☐	☐	US 5596574 A	19970121	13	Method and apparatus for synchronizing data	370/
16	☐	☐	US 5400338 A	19950321	8	Parasitic adoption of coordinate-based addressing	370/

Details | Text | Image | HTML

1st & 2nd sync with test signal

FIG.4

Flow diagram of TU1 as the slave test unit at U-C



frequency to wake-up and synchronize with TU1. Then, TU2 sends a coded signal to tell TU1 the ADSL standard and various modem parameters for the test, such as performance margin, coding/loading gain, ADC resolution, upstream/downstream direction, etc. In this example, the upstream is from TU2 to TU1 and the downstream is from TU1 to TU2. TU1 will acknowledge to TU2 after being synchronized with TU2 and having decoded the test parameters. TU1 and TU2 send individual tones at the maximum power to allow the other unit to adjust its AGC setting for each sub-channel. The cable noise can be measured before receiving the tones, measured after receiving the tones or measured continuously. By converting the received signal levels to the same ones as an ADSL modem, the receiver units will calculate the SNR and the b.sub.j for each sub-channel. Such calculated SNR and b.sub.j are close to the ones which would be obtained by an ideal ADSL modem. For TU1, the theoretical maximum upstream data rate can be calculated by summing up b.sub.j times 4 kHz for all the sub-channels allocated for upstream. Similarly, TU2 can calculate the theoretical maximum downstream data rate.

Detailed Description Text - DETX (22):

In the examples shown in FIG. 4 and FIG., before a test is initiated, TU1 is waiting at step 402 for a synchronization tone or signal to wake up. The user starts a DMT test at TU2 and inputs the test parameters, such as ADSL standard, performance margin, coding/loading gain, ADC resolution, upstream/downstream direction, etc. TU2, at step 502, first sends out a synchronization tone of voice band frequency to wake-up and synchronize with TU1 so that both units have accurate timing for the rest of the test. Then at step 503, TU2 sends a coded signal to tell TU1, at step 403, the various parameters for the test. TU1 will acknowledge to TU2 after being synchronized with TU2 and having decoded the test parameters. TU1, at step 404, sends individual downstream tones at the maximum power to allow TU2, at step 504, to adjust its AGC setting for each downstream sub-channel. TU2, at step 505, sends individual upstream tones at the maximum power to allow TU1, at step 405, to adjust its AGC setting for each upstream sub-channel. TU1, at step 406, and TU2, at step 506, measure the cable noise and interference at both ends of the cable. By converting the received upstream tone signal level, at step 407, to the same one of an ADSL modem, TU1 will calculate the SNR and b.sub.j, at step 408, for each upstream sub-channel. By converting the received downstream tone signal level, at step 507, to the same one of an ADSL modem, TU2 will calculate the SNR and b.sub.j, at step 508, for each downstream sub-channel. For TU1, at step 409, the theoretical maximum upstream data rate and practical upstream

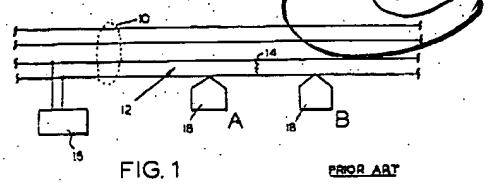


FIG. 1 PRIOR ART

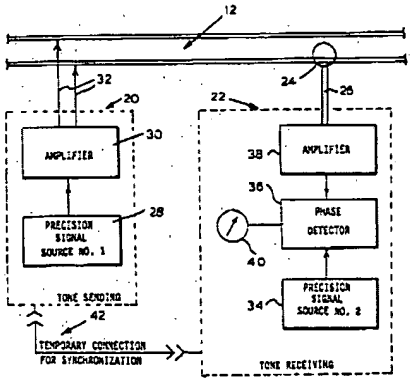


FIG. 2

Before the details of the preferred embodiment as built and tested are set forth in detail, reference should be made to FIG. 5 wherein an alternate embodiment of the present invention is shown in simplified block diagram form. The alternate embodiment of FIG. 5 comprises a tone sending portion 20' and a tone receiving portion 22'. In this embodiment, the tone sending portion still contains amplifier 30 and wires 32 for applying a tone to the two wires or two-wire pair 12 as with the previous embodiment. Likewise, the tone receiving portion 22' includes amplifier 38, phase detector 36, meter 40, and cable 26 connected to inductive sensing coil 24. As will be noted, what is missing are the precision signal sources 28, 34 and the temporary connection 42 for synchronization. Both the tone sending portion 20' and the tone receiving portion 22' in this embodiment contain an antenna 44 for receiving the signal 46 from a radio station, generally indicated as 48. The antenna 44 is connected to an RF receiver 50 which, in turn, is connected to a carrier filter 52, the output of which is fed as an input to a frequency divider 54. The output from the frequency divider 54 is used in the same manner as the output from the precision signal sources 28, 34 of the prior embodiment. The signal 46 from the radio station 48 is received by the antenna 44 in combination with the RF receiver 50. The carrier filter 52 accepts only the basic carrier frequency of the signal 46; that is, the modulation thereof containing the broadcast information is removed. The carrier frequency is then divided by the frequency divider 54 to a useful frequency for application with respect to the conductor pair 12. Since both the tone sending portion 20' and the tone receiving portion 22' are employing the identical signal, they are automatically in frequency synchronization; however, the tone phase synchronizing step previously required, while no longer strictly necessary with this embodiment, may be used to facilitate the observation of phase changes.

Detailed Description Text - DETX (11):

Turning now to FIG. 4, the tone receiving portion 22 is shown in its preferred embodiment as built and tested. Tone receiving portion 22 also contains an ovenized crystal oscillator 56. The ovenized crystal oscillator 56 of the tone receiving portion 22 does not contain the vernier frequency adjustment 58 since only one is necessary. If desired, the vernier frequency adjustment could be omitted from the oscillator 56 of the tone sending portion 20 and be incorporated within the oscillator 56 of the tone receiving portion 22. It is preferred that it be placed in the sending portion 20, however, since that device remains stationary whereas the receiving portion 22 is moved and, therefore, more likely to

US005751741A

United States Patent [19]

Voith et al.

[11] Patent Number: **5,751,741**

[45] Date of Patent: **May 12, 1998**

[54] **RATE-ADAPTED COMMUNICATION SYSTEM AND METHOD FOR EFFICIENT BUFFER UTILIZATION THEREOF**

[75] Inventors: Raymond Paul Voith; Sujit Sadhasivan; George Bockstra, all of Austin, Tex.

[73] Assignee: Motorola, Inc., Schaumburg, Ill.

[21] Appl. No.: 756,768

[22] Filed: Nov. 26, 1996

[51] Int. Cl.[6] H03M 13/12

[52] U.S. Cl. 371/37.7; 370/914; 371/2.2; 371/37.02

[58] Field of Search 371/37.02, 2.2, 371/37.7; 370/914

[56] References Cited

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5,396,604 1/1995 Gelb et al. 345/280
5,636,224 6/1997 Voith et al. 371/2.1

OTHER PUBLICATIONS

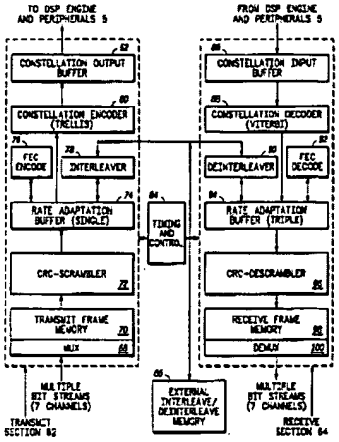
American Nat'l. Standards Institute, Inc., "Asymmetric Digital Subscriber Line (ADSL) Metallic Interface", American Nat'l. Standards Inst., Inc., Network and Customer Installation Interfaces, pp. 1-170.

Primary Examiner—Stephen M. Baker
Attorney, Agent, or Firm—Daniel D. Hill; Paul J. Polansky

[57] ABSTRACT

A transceiver (34) includes a rate adaptation buffer (74) that synchronizes a data stream received at a 4.0 kHz rate to a data stream that is transmitted at a 4.05 kHz rate. A transmit section (62) of the transceiver (34) performs rate adaptation using a single rate adaptation buffer. The transmit section (62) includes four autonomous modules which are able to access the data in the rate adaptation buffer (74) independently of one another. These four modules include a CRC-scrambler (72), a FEC encoder (76), an interleaver (78), and a constellation encoder (80). A timing controller (86) prevents contention for accesses to the rate adaptation buffer (74). In addition, each of the four modules perform their respective functions quickly enough to prevent overflow or underflow conditions in the rate adaptation buffer (74). A receive section (64) functions similarly to the transmit section (62).

18 Claims, 6 Drawing Sheets



US-PAT-NO: 5751741
DOCUMENT-IDENTIFIER: US 5751741 A
TITLE: Rate-adapted communication system and method for efficient buffer utilization thereof

US Patent No. - PN (1):

5751741

Brief Summary Text - BSTX (8):

The frames in turn are grouped together into a "superframe" which includes 68 data frames plus an additional synchronization frame. CRC calculation is performed on all the data in the 68 data frames of a superframe, and the CRC calculated for a prior superframe is transmitted in the overhead bytes of the first frame of the next superframe. The synchronization frame is a special frame which the ADSL equipment uses to delineate the boundary of a superframe.

Brief Summary Text - BSTX (9):

The existence of the synchronization frame creates a rate adaptation problem with the ADSL equipment. On the transmit side, 68 frames of transmit data are gathered in 17 milliseconds (ms), but symbols corresponding to 69 frames (68 frames plus the synchronization frame) are transmitted on the telephone line in the same amount of time. Similarly on the receive side, symbols corresponding to 69 frames of receive data (68 frames plus the synchronization frame) are received from the telephone line in 17 microseconds but only 68 frames are processed in the same amount of time. One way of solving this problem is to add a large buffer area so that while the supplier of data is filling one part of the buffer from one side, the consumer of data is emptying another part of buffer from the other side. However, large buffers consume a large integrated circuit area which adds to its cost. Another problem is that the ADSL equipment must perform all the functions required quickly enough to avoid overflow and underflow conditions. The present invention overcomes these problems by providing an efficient ADSL apparatus, whose features and advantages will be more clearly understood by reference to the Detailed Description in conjunction with the accompanying drawings.

						system and method for	
13	☐	☐	US 5699369 A	19971216	27	Adaptive forward error correction system and method	714/
14	☐	☐	US 5699365 A	19971216	14	Apparatus and method for adaptive forward error	714/
15	☐	☑	US 5677927 A	19971014	46	Ultrawide-band communication system and method	375/

EAST Browser - L20: (15) 19 and synch... | US 5751741 A | Tag: S | Doc: 12/15 | Format: KWIC

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US005751741A

United States Patent [19]

Voith et al.

[11] **Patent Number: 5,751,741**

[45] **Date of Patent: May 12, 1998**

[54] **RATE-ADAPTED COMMUNICATION SYSTEM AND METHOD FOR EFFICIENT BUFFER UTILIZATION THEREOF**

[75] Inventors: Raymond Paul Voith; Sujit Sadhasivan; George Hoekstra, all of Austin, Tex.

[73] Assignee: Motorola, Inc., Schaumburg, Ill.

[21] Appl. No.: 784,768

[22] Filed: Nov. 20, 1996

[51] Int. Cl.[6] H03M 13/22

[52] U.S. Cl. 371/37.7; 370/914; 371/2.2; 371/37.02

[58] Field of Search 371/37.02, 2.2, 371/37.7; 370/914

[56] **References Cited**

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5,596,604 1/1997 Cioffi et al. 345/200
5,636,234 6/1997 Voith et al. 371/2.1

OTHER PUBLICATIONS

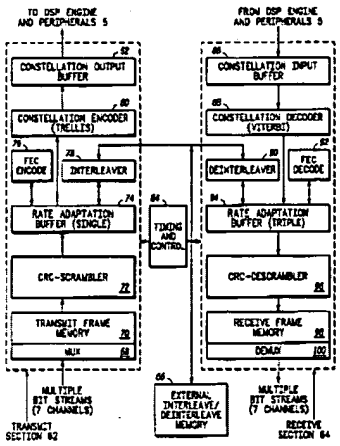
American Nat'l. Standards Institute, Inc., "Asymmetric Digital Subscriber Line (ADSL) Metallic Interface", American Nat'l. Standards Inst. Inc., Network and Customer Installation Interfaces, pp. 1–170.

Primary Examiner—Stephen M. Baker
Attorney, Agent, or Firm—Daniel D. Hill; Paul J. Polansky

[57] **ABSTRACT**

A transceiver (34) includes a rate adaptation buffer (74) that synchronizes a data stream received at a 4.0 kHz rate to a data stream that is transmitted at a 4.05 kHz rate. A transmit section (62) of the transceiver (34) performs rate adaptation using a single rate adaptation buffer. The transmit section (62) includes four autonomous modules which are able to access the data in the rate adaptation buffer (74) independently of one another. These four modules include a CRC-scrambler (72), a FEC encoder (76), an interleaver (78), and a constellation encoder (80). A timing controller (84) prevents contention for accesses to the rate adaptation buffer (74). In addition, each of the four modules performs their respective functions quickly enough to prevent overflow or underflow conditions in the rate adaptation buffer (74). A receive section (64) functions similarly to the transmit section (62).

18 Claims, 6 Drawing Sheets



Details | Text | Image | HTML | Full

L20: (15) 19 and synch... | US 5751741 A | Tag: S | Doc: 12/15 | Format: KWIC

US Patent No. - PN (1):

5751741

Brief Summary Text - BSTX (8):

The frames in turn are grouped together into a "superframe" which includes 68 data frames plus an additional synchronization frame. CRC calculation is performed on all the data in the 68 data frames of a superframe, and the CRC calculated for a prior superframe is transmitted in the overhead bytes of the first frame of the next superframe. The synchronization frame is a special frame which the ADSL equipment uses to delineate the boundary of a superframe.

Brief Summary Text - BSTX (9):

The existence of the synchronization frame creates a rate adaptation problem with the ADSL equipment. On the transmit side, 68 frames of transmit data are gathered in 17 milliseconds (ms), but symbols corresponding to 69 frames (68 frames plus the synchronization frame) are transmitted on the telephone line in the same amount of time. Similarly on the receive side, symbols corresponding to 69 frames of receive data (68 frames plus the synchronization frame) are received from the telephone line in 17 microseconds but only 68 frames are processed in the same amount of time. One way of solving this problem is to add a large buffer area so that while the supplier of data is filling one part of the buffer from one side, the consumer of data is emptying another part of buffer from the other side. However, large buffers consume a large integrated circuit area which adds to its cost. Another problem is that the ADSL equipment must perform all the functions required quickly enough to avoid overflow and underflow conditions. The present invention overcomes these problems by providing an efficient ADSL apparatus, whose features and advantages will be more clearly understood by reference to the Detailed Description in conjunction with the accompanying drawings.

Detailed Description Text - DETX (4):

This allows the synchronization of the 4.0 kHz rate of a superframe having 68 frames to the 4.05 kHz rate of a superframe having 69 frames (68 payload frames plus a synchronization frame) without using a large amount of memory. Thus, the size and cost required to implement the ADSL transceiver is reduced.

Details | Text | Image | HTML | KWIC

					system and method for	
13	☐	US 5699369 A	19971216	27	Adaptive forward error correction system and method	714/
14	☐	US 5699365 A	19971216	14	Apparatus and method for adaptive forward error	714/
15	☑	US 5677927 A	19971014	46	Ultrawide-band communication system and method	375/

Details | Text | Image | HTML

US005699365A

United States Patent [19]

Klayman et al.

[11] Patent Number: 5,699,365

[45] Date of Patent: Dec. 16, 1997

[54] APPARATUS AND METHOD FOR ADAPTIVE FORWARD ERROR CORRECTION IN DATA COMMUNICATIONS

[75] Inventors: Jeffrey T. Klayman, Cairns; John A. Perreault, Hopkinton; Katherine Unger, Wrentham; Stephen Schroeder, Stoughton, all of Mass.

[73] Assignee: Motorola, Inc., Schaumburg, Ill.

[21] Appl. No.: 625,489

[22] Filed: Mar. 27, 1996

[51] Int. Cl.[6] H03M 13/00

[52] U.S. Cl. 371/5.5; 371/41

[58] Field of Search 371/5.5, 35, 41

[56] References Cited

U.S. PATENT DOCUMENTS

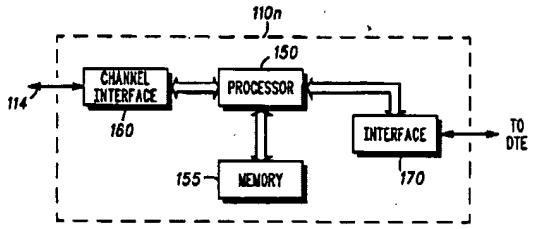
5,346,411 9/1994 Leitch et al. 371/5.5
5,600,663 2/1997 Ayanoglu et al. 371/41

Primary Examiner—Stephen M. Baker
Attorney, Agent, or Firm—Nancy R. Gamburd; Jeffrey T. Klayman

[57] ABSTRACT

An apparatus (101, 114) and method for adaptive forward error correction in a data communication system (110) provides for dynamically changing forward error correction parameters based upon communication channel conditions, such as noise levels or error rates. In the method embodiment of the invention, data having a current degree of forward error correction is received (305), and a channel parameter is monitored (310), such as packet or bit error rates. A threshold level for the channel parameter is determined (315), and the monitored channel parameter is compared to the threshold level (320). When the channel parameter is not within a predetermined or adaptive variance of the threshold level, a revised forward error correction parameter having a greater or lesser degree of forward error correction capability is selected (330, 340, 350, 360), and the revised forward error correction parameter is transmitted (370). The device receiving the revised forward error correction parameter, such as a secondary station (110), then transmits data encoded utilizing the revised error correction parameter (425).

46 Claims, 4 Drawing Sheets



US-PAT-NO: 5699365
DOCUMENT-IDENTIFIER: US 5699365 A
TITLE: Apparatus and method for adaptive forward error correction in data communications

US Patent No. - PN (1):

5699365

Brief Summary Text - BSTX (6):

For such asynchronous data transmission, it is highly desirable to organize data into recognizable formats or packets for reliable detection by the receivers of the primary station or the secondary station. In the CableComm.TM. System, the initial portion (or preamble) of the data packet contains timing or synchronization information for accurate data transmission. Following the timing information is encoded data, which may be encoded for both security (encryption) and for error correction. Following the encoded data are error correction information (as encoded bits) and also additional error detection information in the form of cyclic redundancy check (CRC) bits. One difficulty with inclusion of such error correction information is that such inclusion increases the overall packet size, adding overhead for data transmission and correspondingly decreasing data throughput. Secondly, the inclusion of such error correction information typically increases the system response time or latency, due to the time which may be consumed in the error correction encoding and decoding processes. In addition, there may be situations, such as low noise conditions, in which inclusion of such error correction information may be unnecessary, and higher data throughput may be achieved without the additional overhead of error correction information. Various prior art methods for providing error correction capability, however, typically provided only for a fixed error correction capability, without regard for other opportunities to increase data throughput, for low noise conditions, or for needs to decrease response latency. Accordingly, a need has remained for an apparatus and method to provide for adaptive and flexible error correction capability, providing sufficient error correction for accurate data reception while simultaneously providing for overhead minimization for increased data throughput, and for such an apparatus and method to respond and adapt to potentially changing and variable communication channel conditions.

					system and method for	
13	☑	☐	US 5699369 A	19971216	27	Adaptive forward error correction system and method 714/
14	☐	☐	US 5699365 A	19971216	14	Apparatus and method for adaptive forward error 714/
15	☐	☑	US 5677927 A	19971014	46	Ultrawide-band communication system and method 375/

EAST Browser - L18: (2) 17 and synch... | US 7103096 | Tag: S | Doc: 2/2 | "Full" 1/55 (Total images 55) | Front Page

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L18: (2) 17 and synch... | US 7103096 | Tag: S | Doc: 2/2 | "Full" 1/55 (Total images 55) | Front Page

US007103096B2

(12) **United States Patent**
Mitlin et al.

(10) **Patent No.: US 7,103,096 B2**
(45) **Date of Patent: Sep. 5, 2006**

(54) **PERFORMANCE EVALUATION OF MULTICARRIER CHANNELS WITH FORWARD ERROR CORRECTION AND AUTOMATIC RETRANSMISSION REQUEST**

(75) Inventors: **Vlad Mitlin**, San Diego, CA (US); **Richard G. C. Williams**, San Diego, CA (US)

(73) Assignee: **3Com Corporation**, Marlborough, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 828 days.

(21) Appl. No.: **09/741,639**

(22) Filed: **Dec. 20, 2000**

(65) **Prior Publication Data**

US 2002/0018081 A1 Aug. 8, 2002

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/689,357, filed on Oct. 12, 2000, now Pat. No. 6,732,323.

(60) Provisional application No. 60/239,811, filed on Oct. 12, 2000.

(51) Int. Cl.
H04B 17/00 (2006.01)

(52) U.S. Cl. **375/224**

(58) Field of Classification Search 375/219, 375/220, 221, 222, 240.22, 259, 265, 295, 375/209, 223, 138, 132, 139, 224, 227; 380/241, 380/248, 249, 251, 252; 370/248, 249, 241, 370/251, 441, 335; 311/227; 714/774, 751
See application file for complete search history.

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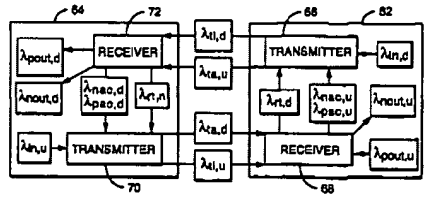
(Continued)

Primary Examiner—Emmanuel Bayard

(57) **ABSTRACT**

In one embodiment, a method and apparatus increases a bit load of a multicarrier system comprising a channel having a plurality of subchannels. A bit load is determined for at least one subchannel based on a target symbol error rate c_t, a maximum number of symbol errors that can be corrected t, a number of symbols in an information field K, and a maximum number of transmissions k, and a number of bits per subchannel. The maximum number of symbol errors t, the number of symbols in the information field K and the maximum number of transmissions k, is selected such that a net coding gain is increased. In another embodiment, a method determines data flow for a channel having a plurality of subchannels in a multi-carrier system.

37 Claims, 9 Drawing Sheets



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L18: (2) 17 and synch... | US 7103096 B2 | Tag: S | Doc: 2/2 | Format: KWIC

US-PAT-NO: 7103096
DOCUMENT-IDENTIFIER: US 7103096 B2
TITLE: Performance evaluation of multicarrier channels with forward error correction and automatic retransmission request

Description Paragraph - DETX (56):

In multicarrier systems, the digital information is transformed by the modem into an analog form that is a sequence of DMT symbols. A DMT symbol is different from a RS symbol, and may comprise RS symbols. Generally, a DMT symbol comprises a number of bits that are loaded on all, or at least a predefined subset, of the subchannels in one direction during one transmission interval. One second of a DMT symbol may include an average of about 4,000 data carrying DMT symbol transmission intervals. Typically, in a DMT frame, 68 data carrying DMT symbols are followed by a synchronization symbol.

US Reference Patent Number - URPN (38):

6445773

Details | Text | Image | HTML | KWIC

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L15: (1) 14 and synch... | US 5995588 | Tag: 5 | Doc: 1/1 | "Full" 1/14 (Total images 14) | Front Page

US005995588A

United States Patent [19]
Crick

[11] **Patent Number: 5,995,588**
[45] **Date of Patent: Nov. 30, 1999**

[54] **TONE LOCATION DEVICE FOR LOCATING FAULTS IN A PAIRED LINE**

[76] Inventor: Robert G. Crick, P.O. Box 8009, Rancho Santa Fe, Calif. 92067

[21] Appl. No.: 08/867,310

[22] Filed: Jun. 2, 1997

Related U.S. Application Data

[63] Continuation-in-part of application No. 08/523,071, Sep. 1, 1995, abandoned.

[51] Int. Cl.[6] H04M 1/24

[52] U.S. Cl. 379/22; 379/6; 379/26; 379/27; 324/527; 324/528; 324/530

[58] Field of Search 379/1, 6, 21, 22, 379/25, 26, 27, 29–30, 32, 324/500, 512, 527–528, 529–530, 67, 541–542, 539–544; 455/41, 67.4

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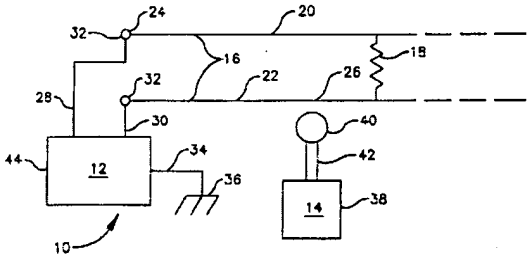
Primary Examiner—Curtis A. Kuntz
Assistant Examiner—Duc Nguyen
Attorney, Agent, or Firm—Rodney F. Brown

[57] **ABSTRACT**

A device and method are provided for locating faults in a paired line. The fault locating device has a transmitting unit connectable to the conductors of a paired line containing the fault. The device also has a portable receiving unit to track the path of the paired line. The transmitting unit contains circuits for creating and transmitting a locator signal and a carrier signal including synchronization through the conductors toward the receiving unit. The receiving unit contains a pickup coil positioned proximal to the paired line, inducing induced locator and carrier signals in the pickup coil. The receiving unit also contains circuits for processing the induced locator and carrier signals and for producing a synchronization signal used to detect and segregate a component of the induced locator signal which is indicative of a fault. The presence or absence of the indicative component is communicated to an operator by means of an audible or visual fault indicator.

26 Claims, 4 Drawing Sheets



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L15: (1) 14 and synch... | US 5995588 A | Tag: 5 | Doc: 1/1 | Format: KWIC

US-PAT-NO: 5995588
DOCUMENT-IDENTIFIER: US 5995588 A
TITLE: Tone location device for locating faults in a paired line

Abstract Text - ABTX (1):

A device and method are provided for locating faults in a paired line. The fault locating device has a transmitting unit connectable to the conductors of a paired line containing the fault. The device also has a portable receiving unit to track the path of the paired line. The transmitting unit contains circuits for creating and transmitting a locator signal and a carrier signal including synchronization through the conductors toward the receiving unit. The receiving unit contains a pickup coil positioned proximal to the paired line, inducing induced locator and carrier signals in the pickup coil. The receiving unit also contains circuits for processing the induced locator and carrier signals and for producing a synchronization signal used to detect and segregate a component of the induced locator signal which is indicative of a fault. The presence or absence of the indicative component is communicated to an operator by means of an audible or visual fault indicator.

Brief Summary Text - BSTX (13):

The transmitting unit is electrically coupled with the two conductors of a paired line believed to contain a fault. The transmitting unit has internal circuitry, including a power source, a locator signal transmission circuit having a locator signal output, and a carrier signal transmission circuit having a carrier signal output. The locator signal transmission circuit is configured to create a locator signal, convert the locator signal to two locator signals of opposite polarity, and introduce the polar opposite locator signals into the respective conductors of the paired line. The carrier signal transmission circuit is configured to create a carrier signal, provide the carrier signal with modulated synchronization, and introduce the modulated carrier signal into the conductors of the paired line.

Brief Summary Text - BSTX (14):

The receiving unit is portable, enabling an operator to track the path

Details | Text | Image | HTML | KWIC

Details | Text | Image | HTML

US006493402B1

(12) **United States Patent**
Fimoff

(10) **Patent No.: US 6,493,402 B1**
(45) **Date of Patent: Dec. 10, 2002**

(54) **MODE CONTROL FOR TRELLIS DECODER**

(75) Inventor: **Mark Fimoff**, Hoffman Estates, IL (US)

(73) Assignee: **Zenith Electronics Corporation**, Lincolnshire, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/321,294

(22) Filed: May 27, 1999

(51) Int. Cl.[7] H03D 1/24

(52) U.S. Cl. 375/321; 348/726

(58) Field of Search 375/295, 265, 375/321, 316, 270, 277, 301; 348/21, 725, 726; 714/701; 455/204

(56) **References Cited**

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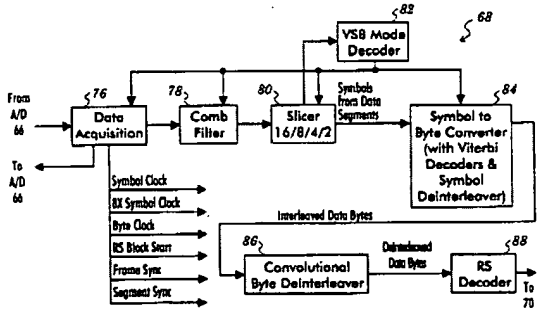
Primary Examiner—Stephen Chin
Assistant Examiner—Kevin Kim

(57) **ABSTRACT**

A transmitter transmits, and a receiver receives, a data frame is transmitted into an 8 MHZ channel. The data frame contains a plurality of data segments, where each of the data segments contain DS symbols. The DS symbols include data symbols, priming symbols, and segment synchronization symbols. The transmitter trellis encodes the data symbols, priming symbols, and segment synchronization symbols. The receiver trellis decodes the data symbols, priming symbols, and segment synchronization symbols. The data frame also contains a mode control ID which the receiver uses in trellis decoding the data symbols, priming symbols, and segment synchronization symbols.

14 Claims, 23 Drawing Sheets



US-PAT-NO: 6493402
DOCUMENT-IDENTIFIER: US 6493402 B1
TITLE: Mode control for trellis decoder

Abstract Text - ABTX (1):

A transmitter transmits, and a receiver receives, a data frame is transmitted into an 8 MHZ channel. The data frame contains a plurality of data segments, where each of the data segments contain DS symbols. The DS symbols include data symbols, priming symbols, and segment synchronization symbols. The transmitter trellis encodes the data symbols, priming symbols, and segment synchronization symbols. The receiver trellis decodes the data symbols, priming symbols, and segment synchronization symbols. The data frame also contains a mode control ID which the receiver uses in trellis decoding the data symbols, priming symbols, and segment synchronization symbols.

US Patent No. - PN (1):

6493402

Parent Case Text - PCTX (2):

The following copending applications disclose subject matter claimed herein: (1) application Ser. No. 09/321,392 filed on May 27, 1999 and entitled Trellis Coded Modulation System For Digital Television With Convolutionally Coded Data and Synchronization Symbols; (2) application Ser. No. 09/321,462 filed on May 27, 1999 and entitled Viterbi Decoder For A Positive Comb Filtered Digital Television Signal; (3) application Ser. No. 09/321,294 filed on May 27, 1999 and entitled Mode Identification for a Digital Signal Having Multiple Data Constellations Subject to Interference; (4) U.S. Pat. No. 6,246,431 entitled Digital Television System For Reducing Co-Channel Interference in 8 MHZ Channels; and, the present application Ser. No. 09/321,798 filed on May 27, 1999 and entitled Data Frame for 8 MHZ Channels.

Brief Summary Text - BSTX (13):

The twelve precoders and trellis encoders interleave the bit pairs so that each bit pair in a first byte of data is processed by a first precoder and trellis encoder, so that each bit pair in a second byte of

						system and method for	
13	☐	☐	US 5699369 A	19971216	27	Adaptive forward error correction system and method	714/
14	☐	☐	US 5699365 A	19971216	14	Apparatus and method for adaptive forward error	714/
15	☐	☑	US 5677927 A	19971014	46	Ultrawide-band communication system and method	375/